The Alberta Research Council -A historical perspective

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...harnessing creativity for economic growth

The history of the Alberta Research Council reveals much about the fabric of the Alberta economy. It chronicles developments in the province's energy and agriculture sectors. It tracks provincial advances in transportation and environmental protection. And it reflects the blend of industrial and scientific resources that, today, is helping to make Alberta an internationally recognized centre of high technology endeavor.

The Alberta Research Council story is a saga of determination, of innovation, and of unswerving belief that Alberta's uncommonly abundant natural resources deserve enlightened development for the benefit of all Albertans.

Dr. Henry Marshall Tory

"The war had left a lasting impression upon him of the great value of scientific pursuits in a nation; he became tireless in his advocacy that universities, governments, industrial firms and societies should all realize the great importance of scientific discovery, of practical application of scientific devices, and of general guidance by the scientific method. He convinced the government of Alberta and helped it found the Alberta Council of Scientific and Industrial Research, becoming its first Chairman."

From a tribute to Dr. Henry Marshall Tory, first President of the University of Alberta in the proceedings of the Royal Society of Canada, 1947.

1921-1933: The early years

Organized scientific and industrial research was in its infancy in Canada following World War One. In fact, when the Alberta government decided in 1921 to form the Scientific and Industrial Research Council of Alberta (SIRCA), the move represented a bold step, which no other provincial jurisdiction had yet taken.

Outside observers might have found it difficult to fathom why Alberta had chosen to be the leader.

Organized as a province only 16 years earlier and with its first university established for a scant dozen years, Alberta of the early 1920s hardly seemed the ideal breeding ground for major scientific investigation. Sparsely populated and with a predominantly agricultural economy, the province might well have left such initiative to a more industrially developed region.

Those who took this position had not reckoned on the foresight and enterprise of Alberta government and industry. With World War One behind them and the potential of western Canadian growth before them, Albertans in general were anxious for progress. They were demanding better roads, calling for development of the province's im-

Dr. John Allan (right), an original member of the Scientific and Industrial Research Council of Alberta, was responsible for the publication of the first geological map of the province in 1926.

By 1926, industrial research at the University of Alberta, conducted under the banner of the Scientific and Industrial Research Council, had attracted a strong nucleus of scientists.

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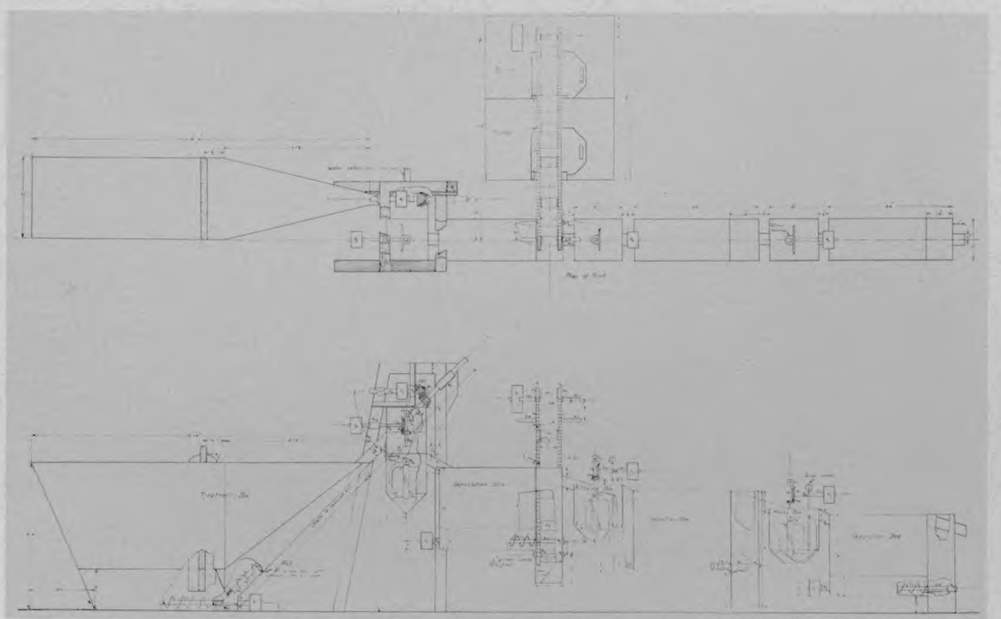


Throughout the history of the Research Council, the potential of the oil sands has caught the imagination of its scientists. This plan for a bituminous sands separation plant was developed in 1923.

pressive mineral and bitumen resources, and looking for technical assistance for business ventures involving everything from fuels to forestry.

Sensing the mood—and the opportunity—representatives of the University of Alberta, the business community and the public at large organized in an effort to "sell" the government of Premier Charles Stewart on the research council concept. True, the new university was involved in research. But to these farsighted Albertans, it was obvious that more narrowly focused scientific investigations were needed if the province was to harness its resources and become an economic force in Canada.

From the outset, the objective was clear—the new research organization would be designed to support economic development through the application of scientific and engineering expertise and, in the process, improve life in rural and urban Alberta.

A major force in spearheading organized scientific research in the province was Dr. Henry Marshall Tory, first President of the University of Alberta, who had already helped found the National Research Council and, later, the Nova Scotia Research Foundation and Carleton University, Ottawa. A man of wide scientific activities and interests, he had both the commitment and credibility necessary to promote the idea that scientific knowledge was essential to economic success.

Dr. Tory found a strong ally in Provincial Secretary Jean L. Cote, whose interest in the mineral resources of the province was well known. It was Cote who had earlier commissioned

Coal briquetting experiments conducted by Research Council staff during the early 1920s helped launch an Alberta industry that flourished for decades.

Professor Edgar Stansfield

"At a conference held in Edmonton in October, 1929 and attended by representatives of the National Research Council and the Dominion Department of Mines, it was suggested that a coal survey should be made, over a limited area of Alberta, to ascertain the value and also the cost in time and money, of a thorough investigation of the nature of the coals. New methods for the utilization of coal have been developed in the last few years and more methods are in process of development. The old simple methods of analysis are no longer sufficient to evaluate and classify coals."

From a report by Prof. Edgar Stansfield, technical advisor in chemical engineering, Annual Report of the Research Council of Alberta, 1930.

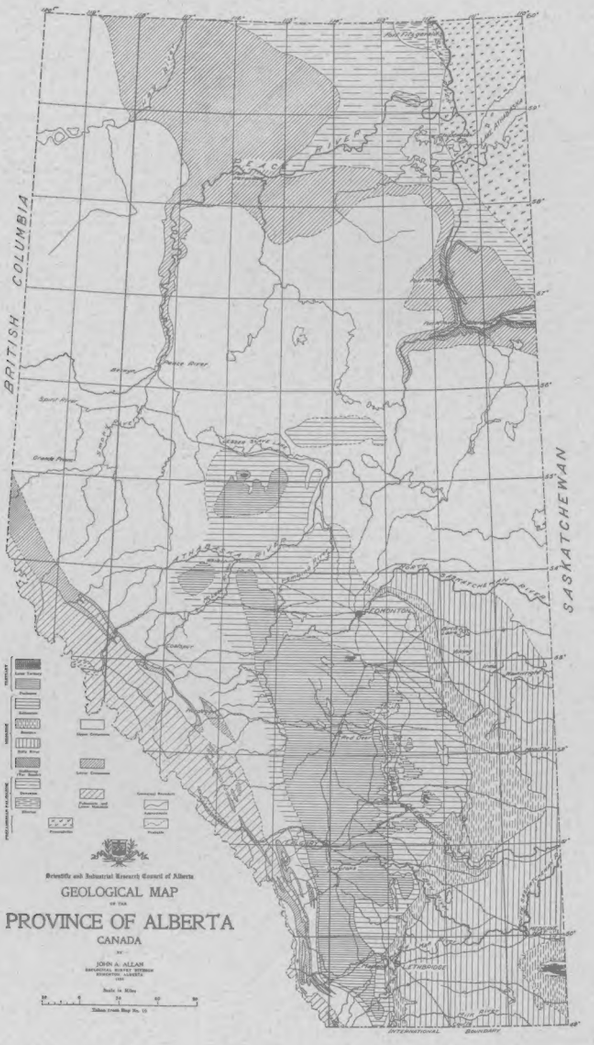
University of Alberta geology professor John Allan, another strong advocate of scientific research in the province, to begin surveying Alberta's resources. When SIRCA was formed, Cote, Tory and Allan, along with Chief Mines Inspector John Stirling and Mining Professor Norman C. Pitcher, became the first members.

With no shortage of potential research projects to explore, SIRCA quickly attracted a nucleus of widely respected professors and researchers. Included were Dr. Robert C. Wallace, Dr. Tory's successor as President of the University of Alberta. Professor Edgar Stansfield, who would become Chief Chemical Engineer in charge of coal research and eventually Research Council secretary, and Dr. Karl Clark, a chemist who was to become internationally recognized for his oil sands research, which first focused on bitumen as a road paving material and later on its importance as a fuel source.

As aggressive in approach as it was small in physical terms, the fledgling research group, centred at the university, was soon involved in oil sands pilot plants and provincial resource mapping projects, and in providing technical aid and advise to both industry and government.

By 1930, as the province prepared to take over control of its natural resources from the federal government, legislation was enacted to make the Research Council of Alberta (later to become the Alberta Research Council) a corporate body with an expanded mandate to handle all scientific and technical research assigned to it by cabinet.

With Canada sliding into depression, however, Research Council members had little time to enjoy their elevated role. For much of the next decade, government funds would be skimpy and, in some years, withdrawn completely.



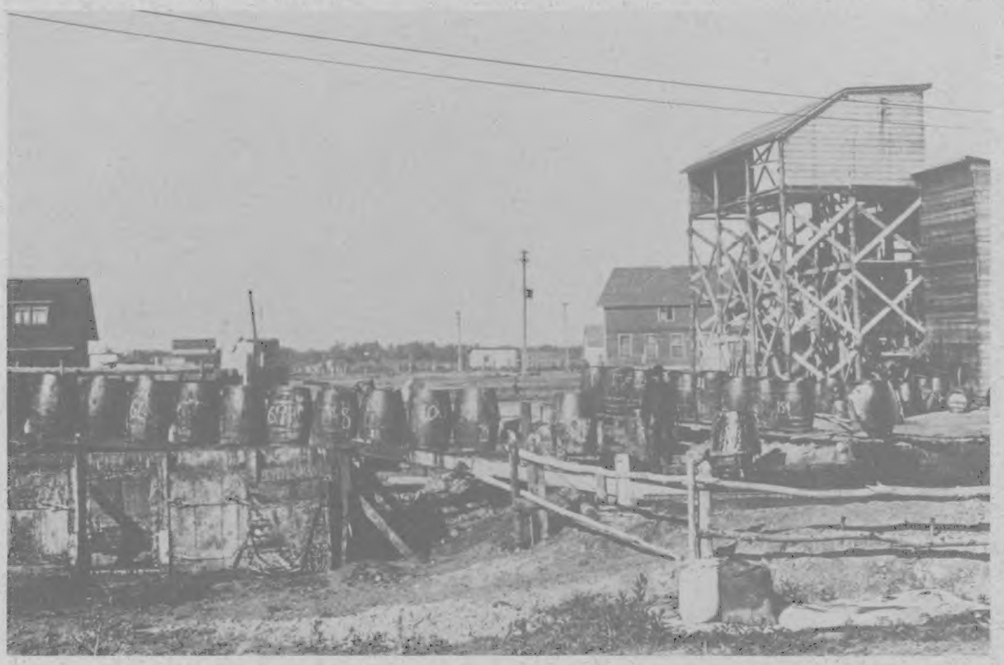
Geological map of Alberta by John A. Allan, 1926.

1933-1942: The challenge of survival

For almost a decade, scientific and industrial research in Alberta was in peril. Long-term oil sands and coal classification projects were abandoned; valuable researchers moved away; and only through the co-operation of the University of Alberta was it possible to retain a small group of senior scientists from the Alberta Research Council, who doubled as professors. Combined with National Research Council grants, this was enough to sustain modest investigative programs related to coal, natural gas and road materials.

Despite the setback, the concept of publicly sponsored research was so firmly rooted in the province, it refused to die—a tribute to those who foresaw the day when a predominantly agricultural province would have a multi-dimensional economy and take its place in international commerce.

Scientists become adventurers as they chart Alberta's resources—here at granite cliffs between Leland and Charles Lakes in the late 1920s.



Oil sands extraction plant at Waterways, Alberta, 1929.

Dr. Karl Clark

"The discovery of the secret of bituminous sand separation does not mean that we have just discovered how to separate bituminous sand. We have been able to do that for a long time. Our knowledge could be stated in this way— 'We have found it to be true of all the bituminous sand we have worked with that if you do this and this and that it will separate very nicely.' Then, at the separation plant in the north, we encountered bituminous sand which did not separate nicely when one did 'this and this and that'. Now as a result of the work of the past year we can say, 'if bituminous sand is made neutral or alkaline by treatment with soda ash, there will be no difficulty in separating it. Failure of bituminous sand to separate is due to acidity and lime.' "

Annual Report of the Research Council of Alberta, 1931.

Dr. Robert Newton

"Nothing can be more important to our material welfare than a co-ordinated attack on technical problems in developing wisely our abundant physical resources. The Council provides an advanced means whereby government departments such as Trade and Industry and Lands and Mines can join with the university for this purpose."

Reprinted from "The University: a Laboratory for Alberta," published in *The Trail*, December, 1941.

1942-1962: Rebirth

Following the depression, renewed interest in oil sands development by both private and public sectors sparked revival of the Research Council. By November 1942, it had been reestablished with eight new researchers hired. Progress was again hampered, however—this time by the second World War. Trained personnel were difficult to recruit, equipment was in short supply, and wartime research, of necessity, took on a narrower focus, concentrating mainly on fuel investigations.

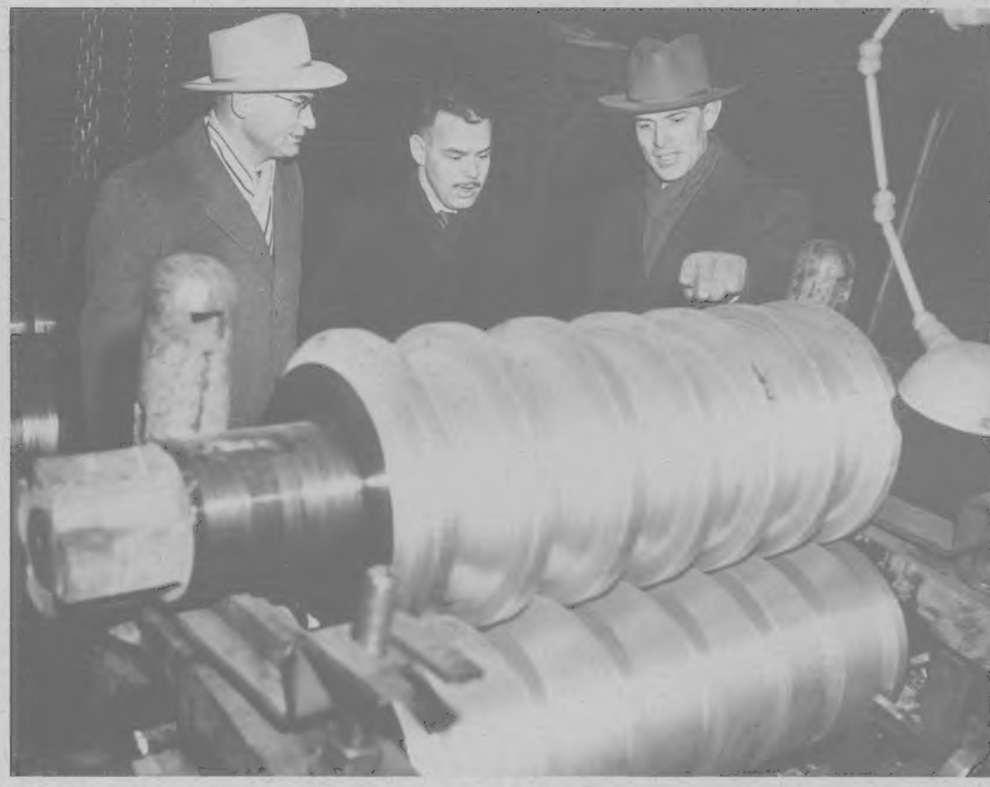
Following the war, the scope of Research Council activities broadened. Work resumed in traditional research areas and new initiatives—including a full-fledged highways research program and an industrial engineering component—were introduced.

By the 1950s, the growing diversity and complexity of work sparked a scramble for research space and yet more qualified researchers. It was obvious the time had come for a full-time director—Dr. Robert Newton, who, like his predecessors, had been handling the dual role of President of the University of Alberta and head of the Research Council. Following retirement from the university, he agreed to act in this capacity and until a permanent director could be appointed. By late 1951, Dr. Nathaniel Grace had been named to the post of full-time director, and it was apparent Alberta's pioneer research organization had come of age.

Dr. Grace's directorship coincided with an era of strong growth for the Research Council. New programs were added and existing projects expanded.

The "Campus Building," completed in 1955, became the Research Council's first permanent home and provided the opportunity for expanded technical programs.

This commanding mural at the entrance to Research Council headquarters reflected the close links between science and economic growth in Alberta.



By the late 1950s, the Research Council's industrial engineering capability was attracting the interest of Alberta companies bent on growth and modernization.

In light of Alberta's agricultural heritage, it is not surprising that soil investigations have played a prominent role in Research Council activity.

Staff increased from 28 to 136 in the space of a decade. Dependence on the University of Alberta decreased. And the organization's first permanent home was completed on the University of Alberta campus in 1955.

Oil sands and coal research, gasoline and oil testing, geology, highways research, industrial projects, natural gas investigations, soil surveys and a spate of minor projects were being pursued. Scientific and tech-

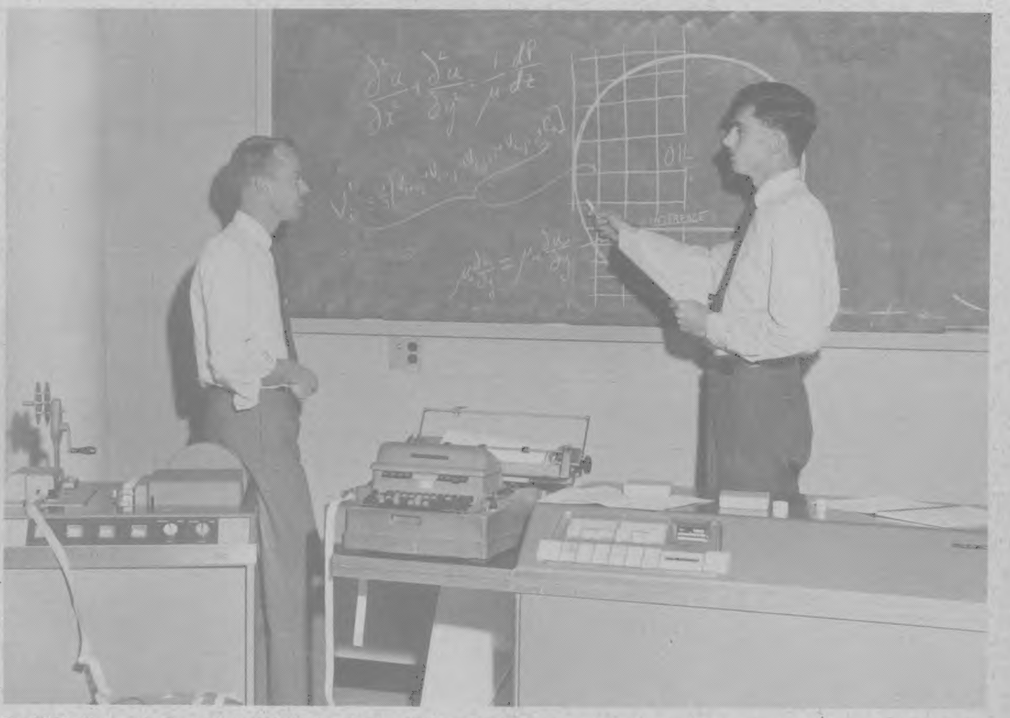
Dr. Nathaniel H. Grace

"The real renaissance in Research Council activities took place in the period following the discovery of major oil fields in Alberta, when it became evident that the Province would have both the financial resources to support a larger research organization and the need for technical information to guide the rapid development which was expected to take place. Plans were laid for a major expansion and diversification of Council activities and a new Director of Research, Dr. N.H. Grace was appointed in 1951. Dr. Grace remained in this position until his sudden death in 1961, and supervised a rapid period of growth which saw the full-time staff increase from 28 in 1950 to 65 in 1955 and 136 by 1960."

Reprinted from "A Brief History of the Research Council of Alberta," 1921-1971.

Dr. Robert M. Hardy

Dr. Robert M. Hardy (1906-1985), as professor of Civil Engineering and Dean of Engineering at the University of Alberta, developed and supported the joint research program in highways carried out by the Alberta Research Council within the Civil Engineering Department of the university. The program established close ties with the provincial government's Highways Department, fostering significant contributions in applied research. Dr. Hardy was a member of the Technical Advisory Committee of the Alberta Research Council from 1946 to 1959, and served on the Research Council's Board of Directors from 1959 until 1984.



By 1960, Research Council staff had clearly moved into the computer age, welcoming the sophisticated new tools that would revolutionize investigations and improve communication with the public.

nical staff found themselves involved in both short- term, applied research projects and long-term, fundamental research programs.

By the end of the decade, new projects related to agriculture, groundwater studies and hail research were added to the list. A microbiological section to aid coal and petroleum research was introduced; responsibility for the Technical Information Service for Alberta was taken over from the National Research Council; and the new industrial engineering section was becoming a model for similar units elsewhere.

By 1960, with a pipeline transportation study beginning and investigations of gypsum and iron deposits underway, the Research Council's high standards of technical performance were being increasingly recognized.

In 1962, following the sudden death of Dr. Grace, the long-time Research Council Secretary W.A. (Bert) Lang, directed research activities until Dr. Ernest J. Wiggins was appointed Director of Research later that year.

The addition of a microbiology section in the 1950s added new scope to Research Council investigations of coal and petroleum.

1962-1977: Forging links with industry

By the early 1960s, roughly half of Research Council efforts were devoted to long-range studies of natural resources—with an eye to developing new processes for utilization. But demand for applied industrial research was growing as the number of primary and secondary manufacturing firms in Alberta mushroomed.

Industrial and engineering services were expanded and an innovative Product Research and Development program was launched. The Research Council was now accepting research projects on a contractual basis and by the mid-1960s a new industrial research laboratory and pilot plant had been built in Edmonton's Clover Bar area. Its first undertaking was to provide facilities and services to Peace River Mining and Smelting who were committed to developing Alberta Research Council technology for upgrading iron ores from the Peace River district.

During this period, the Research Council was severing its final administrative bonds with the University of Alberta, although a spirit of close cooperation remained.

Solids pipelining, river hydraulics, pavement design and performance, natural gas recovery, surface coal mining operations and oil sands recovery processes were among major subjects of research during the 1960s. And near Fort McMurray, the first commercial oil sands venture was preparing to use the hot water separation process previously developed by Research Council staff under the direction of Dr. Karl Clark.

By the time the organization celebrated its 50th anniversary in 1971, full-time staff numbered 200 and contract research was beginning to grow in both scope and complexity, reflecting the commitment to change in response to the industrialization of Alberta.

New radar equipment installed at field headquarters of the Alberta Hail Studies project in 1969, represented a milestone in ongoing weather modification research.

Pipeline studies during the 1960s and '70s, such as this investigation of pipeline friction measurements, underscored the importance of Alberta's expanding energy industry.

Among notable achievements of the 1970s were Canada's first successful underground coal gasification test near Forestburg and the development of a new and economical process for recovering helium from natural gas. The latter involved semi-permeable membrane technology, which was since adopted and is now being marketed by an Alberta firm for use in commercial gas separation.

The Research Council had moved into the age of automation, using computer technology not only for research purposes but for providing provincial and national leadership in the use of computerized technical information services for the public. In the late 1970s, energy concerns were very much in the spotlight and Alberta's hydrocarbon resources became a magnet for a nation bent on energy self-

Dr. Ernest J. Wiggins

"It is true that the Research Council of Alberta, in common with most other research organizations, is currently suffering a few difficulties and disappointments due to the general shortage of research funds and the decline in industrial research activity. However, the opportunities to assist the Province through the application of scientific research and information have probably never been greater than at this time, with intensifying competition for both markets and resources and with rising public concern over quality of life... There is every reason to expect that the Research Council will make an even greater contribution to the well-being of the Province in the coming half-century than in the one we have just finished."

Dr. E.J. Wiggins, writing on the occasion of the 50th anniversary of the Research Council of Alberta, 1971.

The Research Council's Clover Bar complex, opened in 1966, has become an important focus of oil sands research in the province.

sufficiency. By 1978, for example, some 80 professional and technical personnel were involved in oil sands investigations alone, reflecting both private and public sector interest in large-scale oil sands development. Focusing primarily on in-situ recovery methods, the research was funded by both private industry and the provincially funded Alberta Oil Sands Technology and Research Authority (AOSTRA).

Through repeat business with industry sponsored by AOSTRA, the Product Research and Development Program was reorganized into the multidisciplinary Oil Sands Research Department, capable of managing and conducting large-scale research and development projects.

Elsewhere, in a wide-ranging program, research revolved around everything from ammonia catalysts to animal feed supplements and reforestation seedling containers, from the desulfurization of coke to silage preservation, and from highway pavements to protection of Alberta's water supplies. As in previous decades, the Research Council was demonstrating its ability to react quickly and imaginatively to a changing economy and the evolving needs of industry.

A sample of finely stranded hollow plastic fibres is held next to a spool of ordinary thread. Similar fibres were used in developing permeation membranes for separating gas mixtures, now being marketed for commercial use.

Following the retirement of Dr. Wiggins in 1977, Research Council activities were supervised by Acting Director Dr. Brian Hitchon, now a Research Fellow, until the appointment in 1978 of Dr. Gilles G. Cloutier to the post of Director of Research (later renamed President).

Installation of containment cells at Research Council's coal research facilities, in 1982, set the stage for a range of high-pressure/temperature experiments.

1977-1983: Defining long-term directions

During a challenging period for Alberta, in which dramatic growth gave way to an equally dramatic downturn in the economy due to world recession and energy industry constraints, Dr. Cloutier guided the Research Council through the adoption and implementation of its first Long Range Plan.

Beginning with a five-year research and development program, the long-term strategy clearly reflected the close relationship between scientific effort and industrial growth in the province. As well, it positioned the research group for a period in which Alberta's scientific and technical expertise would be directed increasingly toward the private sector, including Alberta's penetration into international markets.

Planners, developers, consulting engineers, environmentalists, the energy, chemical and agriculture industries, government departments and agencies, and individual Albertans increasingly turned to the Research Council for technical and scientific advice.

By 1980, increased funding and a steadily growing staff saw activity accelerate in virtually every area of research. Scientists addressed matters as diverse as solar and wind energy, groundwater, weather modification, coal pyrolysis, and industrial plant layout. Complex computer models were being used as planning tools for industry and, more and more, complex industrial problems were being solved through a multidisciplinary team approach.

In recognition of the growing skills and expertise, awards of large contracts from the private and public sectors increased in number.

During this period, operations spread to more than a dozen Edmonton-area sites.

Dr. Gilles Cloutier

"This year, 1980, marks the first year of implementation of the Alberta Research Council's Long Range Plan. The new management systems and management structure established at the beginning of the year reflect the emphasis of the research activities identified in the Long Range Plan. This management system encourages both greater interdisciplinary participation and greater awareness by staff of the various research projects being carried out at the Research Council.

"Although the sudden change in the province's economic climate has forced us to readjust some of our research programs, the government has maintained its commitment to promoting research and development in Alberta."

From the 1982 Annual Report of the Alberta Research Council.

By 1980, staff of the chemical laboratory had become part of a Research Council team that increasingly relied on a multidisciplinary approach to solving industry problems.

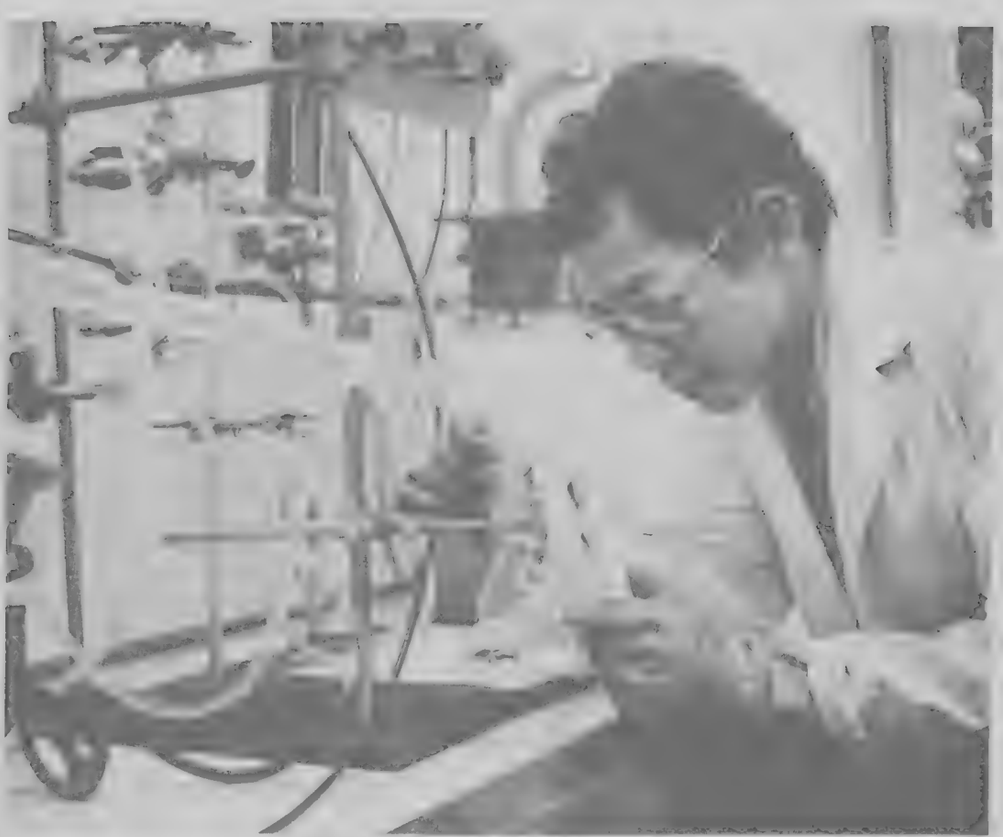
underscoring the need for consolidation and setting the stage for the new complex in southeast Edmonton.

Even when it became obvious early in the 1980s that Alberta could no longer escape the recession that had battered other parts of North America, the Alberta government continued its strong support for research activity, in keeping with its commitment to economic diversification and to the technical excellence of Alberta firms operating in a highly competitive marketplace.

In 1983, Dr. Cloutier completed his contract and left the Research Council to become Executive Vice-President of Hydro Quebec and, more recently, President of the University of Montreal. By that time, the Research Council had acquired a higher public profile. The Board of Directors had assumed greater responsibility for setting the policy directions that would guide activities for the eighties and beyond. Also, the four-year planning and construction program for new Research Council headquarters and laboratories had been launched.

It was against this background that Dr. Robert Green, Vice-President Operations, directed the affairs of the Research Council, serving as Deputy President until the appointment in February, 1984 of Dr. Robert Stewart as President.

Experiments to test bitumen removal by steam, gas and solvent injection using simulated field conditions demonstrated the effectiveness of additives to the basic steam recovery process.



Hydrocarbons remain a pivotal area of investigation for Research Council staff — as in this 1983 experiment related to the conversion of bitumen, heavy oils and coal liquids into useful transportation fuels.

The mid-1980s: Expanding horizons

A former Deputy Minister of Universities, Science and Communications in British Columbia, Dr. Stewart has guided the Research Council through a period of further development and change, including the move to the new Research Council headquarters.

Reflecting a trend toward decentralization of Research Council operations, 1984 saw the move to Calgary of the Industrial and Engineering Research Division under regional Vice-President Dr. David Mitchell, and transfer of the Coal Research Department to the new Coal Research Centre, Devon, southwest of Edmonton.

Other significant events have included development of the Advanced Technologies Program, establishment of the $10-million Electronics Test Centre, and signing of the first major contracts for the Research Council's new Biotechnology Pilot Plant.

Terrain sciences research, which includes the study of soils and groundwater resources, plays a vital role in Alberta's many land reclamation projects.

Dr. Robert Stewart

"I think we must concentrate on what we can do to help the economy. We've got to be imaginative about it and we've got to be diligent and thorough. We're one of the major tools the province has put in place to resolve its longer term problems—exploiting its resources and diversifying the economy. The people of Alberta, through their government, have provided us with superb facilities. It is our task and opportunity to show they have invested well."

From the 1985 Annual Report of the Alberta Research Council.

The Research Council's sophisticated new Biotechnology Pilot Plant reflects a growing North American interest in the practical application of biotechnology to industries ranging from agriculture to pharmaceuticals.

Opening of the new Alberta Research Council headquarters in 1986 made it possible to consolidate many of the organizatio monton-based research activi

1986: Maturity from the past, vision for the future

Creation of the most advanced research facility of its kind in Canada to house the Alberta Research Council is a fitting tribute to the nation's senior provincial research organization, this year marking its 65th anniversary.

Encompassing a number of traditional Research Council functions, the $65-million complex also houses the Electronics Test Centre, biotechnology laboratories and fermentation pilot plant, and the forest products test laboratories.

The new centre is a focal point for Research Council activities across the province—from Edmonton's Clover Bar facilities, the Calgary regional office, and the federally/provincially funded Coal Research Centre at Devon to auxilliary laboratories and offices in Edmonton, Red Deer and Lethbridge.

As well, the complex reflects the Alberta government's support for the kind of scientific endeavor that has placed this province in a world leadership position in many areas of adoptive research.

Significantly, this latest chapter in Research Council history coincides with a provincial government decision to recognize the vital role of scientific activity in Alberta through the creation of a new Technology, Research and Telecommunications ministry.

Looking toward even stronger links in the future with Alberta industry, the Research Council will continue to pursue a broad range of research and technical assistance programs. Under the guidance of the president and 15-member board o tors drawn from the vince's universities, and government, its scientists, technolog support staff will co to work in an enviro which reaffirms the organization's origi mitment—to apply s knowledge toward e growth.

With an annual bu roughly $40 million generated equally fr government grants a tract work for both p and public sectors, t Research Council is

In 1982, a forest products research program was established to provide technical services to industry and help Alberta realize the potential of its large unused forest resource.

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of the president and a 15-member board of directors drawn from the province's universities, business and government, its 550 scientists, technologists and support staff will continue to work in an environment which reaffirms the organization's original commitment—to apply scientific knowledge toward economic growth.

With an annual budget of roughly $40 million (1986) generated equally from government grants and contract work for both private and public sectors, the Research Council is currently directing its efforts towards projects that run the gamut from soil erosion to hail storms, coal conversion to heavy oil pipelining. Researchers are working to improve everything from structural wood panels to paving materials. And, with an increasing emphasis on electronics and biotechnology, they're applying their investigative skills to such farsighted challenges as genetic engineering and artificial intelligence.

As in the past, today's contributions will be reflected in future technological advances, and competitive advantages for Alberta industry.

Modern facilities, sophisticated equipment and the challenging demands of industry are combining to create new horizons for the Alberta Research Council. Clearly, however, future successes will be linked directly to the innovative spirit, enthusiasm and scientific excellence of staff. In the tradition of their predecessors, they continue to gain honor and respect for this multi-faceted research organization.

Looking back: Chronology of achievements

1986
Official opening of the Alberta Research Council's new 30 000-square-metre administrative headquarters and laboratory complex in Edmonton.

1985
Commissioning of several new Research Council facilities including the Electronics Test Centre and Biotechnology Pilot Plant in Edmonton and the Coal Research Centre, Devon.

1984
Expansion of Research Council's Calgary regional headquarters to house, among other activities, the new Advanced Technologies research program designed to help Alberta industry profit from computer technology and automation, and the Industrial Technology Department to put national and international technology into the hands of industry.

By the mid-1980s, this concept of a field site for testing electromagnetic interference had become reality in the $10-million Alberta Research Council-sponsored Electronics Test Centre.

1983
Establishment of the Joint Research Ventures Program to help forge stronger links between the Research Council and the private sector through shared expenses, resources and personnel.

1982
Formation of a Forest Products research program under federal and Alberta government sponsorship.

1981
Negotiation of a research agreement between Research Council and Bio Logicals Inc. of Toronto, establishing Council's base in genetic engineering and setting the stage for the Biotechnology Pilot Plant.

1980
Implementation of the Research Council's first Long Range Plan, covering major programs in coal, oil sands, frontier sciences, industrial and engineering research, and natural resources research.

1979
Intensification of coal research with the major focus on the conversion of coal to liquid fuels; release of the first report on Alberta's sand and gravel resources.

1978
Establishment of the Industrial Sciences Branch to encompass several divisions closely associated with industry.

1977
Following several years of laboratory work, discovery of a novel process for recovering iron from the Clear Hills iron ore of northern Alberta; completion of the first successful underground coal gasification test in Canada—at Forestburg; establishment of the Solar and Wind Energy information centre with funding from Alberta/Canada Energy Resources Research Fund.

Tissue culture techniques, developed by Research Council staff, are helping to develop winter hardy strains of wheat for the Alberta environment.

1976
Completion of a solids pipelining study, which showed potential for the movement of sulfur in capsules.

1975
Establishment of the Alberta Oil Sands Information Centre as part of the Research Council's Oil Sands Research Department—to create and maintain a database of all technical information on oil sands, heavy oil and enhanced recovery.

1974
Further development of the Alberta Plains Coal Resource Inventory; continuation of research into cloud seeding as a means of hail suppression.

1973
Announcement of a three-year joint program with the University of Alberta to determine the sulfur analysis of rain, hail and snow and of a new project at the Clover Bar Pilot Plant to produce nitrogen-containing animal feed supplements.

1972
Completion of two major river engineering and bridge hydraulics studies as an aid to engineers and those concerned with river management in Alberta.

1971
Recognition, on Research Council's 50th anniversary, of its significant contribution to the provincial economy through coal, oil sands and other mineral resource research, technical assistance programs and work on highway construction, water resources and river engineering.

1970
In cooperation with TransCanada Pipelines Ltd. and Alberta and Southern Gas Company, formation of Alberta Helium Ltd., forerunner of International Permeation Inc., to commercialize a Research Council-developed gas separation process based on dry membrane permeation technology.

1969
Completion of the preliminary soil survey of major agricultural areas, leading to later classification of agricultural and forestry regions of Alberta; development of seedling containers for reforestation.

1968
Decision by Great Canadian Oil Sands (now Suncor Inc.) to incorporate Dr. Karl Clark's hot water process in its Fort McMurray commercial oil sands venture; construction of the first in-situ oil sands recovery simulator under contract to Petrofina Canada.

1967
Commencement of technical and economic studies related

to solid commodity pipelining, undertaken with the co-operation of industry and the federal government.

1966
Opening of the Clover Bar Pilot Plant in Edmonton.

1965
Establishment of the Product Research and Development program to respond to demands of increasing industrialization in Alberta.

1964
Severing of final administrative ties with the University of Alberta, giving the Research Council greater automony.

1963
Dedication of the second Athabasca Oil Sands Conference in Edmonton to the Research Council's Karl Clark, pioneer oil sands investigator, with conference proceedings to be known as the K.A. Clark Volume.

A 1961 coal research experiment reflects the on-going commitment of the Alberta Research Council to the efficient development and utilization of this vast resource.

1962
Purchase of the first digital computer, heralding a new era of automation for Research Council and of enhanced service to Albertans.

1961
Receipt of more than 1 000 enquiries by the Technical Information Service, underscoring Alberta's interest in economic diversification and growing awareness of Research Council resources.

1960
Initiation of detailed studies of transportation, including pipeline transport, with a view to establishing Ontario and Quebec markets for Alberta coal.

1959
Completion of a geological survey outlining an area containing up to 200 million tons of easily and cheaply mined Alberta coal suitable for power generation and other industrial use.

1958
Establishment of a new Microbiology Section to conduct microbiological investigations of coal and petroleum; introduction by Research Council of a program of post-doctoral fellowships.

1957
Involvement of Research Council and the University of Alberta in a unique large-scale physics experiment—to conduct acoustics tests and "tune" Edmonton's impressive new Jubilee Auditorium.

1956
Launching of hail research by the Research Council and other interested agencies, marking the beginning of continuing involvement with weather modification research studies.

1955
Completion of new Research Council headquarters on the University of Alberta campus, resulting in expanded technical programs.

1954
Commencement of groundwater research and of investigations related to fluoridation and pollution.

1953
Transfer to Research Council of the National Research Council's Technical Information Service for Alberta.

1952
Reflecting Research Council's ongoing interest in Alberta's agricultural resources, initiation of two new research projects related to the hatchability of turkey eggs and irrigation of solonetzic soils.

The flexibility of industrial engineering specialists has traditionally allowed the Research Council to respond quickly to the changing needs of industry.

1951
Appointment of Dr. Nathaniel Grace as Research Council's Director of Research; major involvement of Research Council staff in staging Alberta's first oil sands conference, a pivotal event which sparked new interest in commercial oil sands ventures.

1950
Reorganization of Research Council laboratories to accommodate oil sands research of a chemical as well as chemical engineering nature.

1949
Critical internal examination of the Research Council Act and by-laws, resulting in recommendations for a full-time director and for greater diversification of Research Council activities.

1948
Expansion of geological researchers' work to include, in addition to coal and iron, investigations of clay, water and sand resources.

1947
Doubling of requests for industrial engineering assistance, reflecting increasing demand for technical information and evaluation of industrial proposals.

1946
Establishment of the Highways Division to undertake systematic studies of soil conditions and methods for improving pavement strengths.

1945
Creation of industrial engineer's post (filled by

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J.E. Oberholtzer) to help industry test and evaluate techniques and proposals for development; commencement of research on animal cycles (crucial to Alberta's fur trade) and on utilization of the province's vast poplar resource.

1944

Completion of an agreement that would allow the Research Council to participate in an oil sands pilot plant project at Bitumont undertaken by Oil Sands Ltd.

1943

Transfer of the Gasoline Testing Laboratory (later the Gasoline and Oil Testing Laboratory) from the Department of Trade and Industry to the Alberta Research Council.

1942

Rejuvenation of the Research Council of Alberta by Order-in-Council as a six-member body with a mandate to survey Alberta in-

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Industrial research began in Alberta in practical fashion—with this 1923 experiment to test the relative merits of various heating plants.

1929

Receipt of patent for the hot water extraction process of extracting bitumen from mined oil sands, developed by Dr. Karl Clark.

1928

Broadening of Research Council activities to include soil surveys and natural gas research.

1927

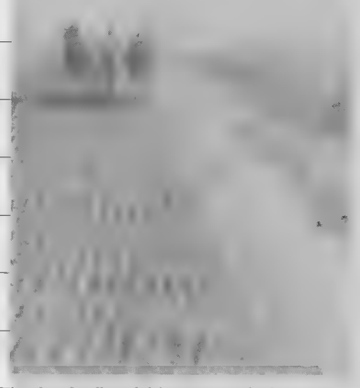
Completion of several successful experiments in the use of oil sands bitumen in road surfacing, including treatment of a 600-foot section of gravel trail between Edmonton and St. Albert.

1926

Publication of the first Geological Map of Alberta by Research Council.

1925

Publication by Fuels Division of typical coal analyses



basis of a flourishing energy industry,
r to stabilizing Alberta's earth roads.

for specific mining areas, vital information for Alberta's coal mining industry.

1924

Transfer of responsibility for the Research Council from Provincial Secretary to Executive Council, placing the new scientific organization under direct control of the Premier.

1923

Construction and operation of a bituminous sand separation plant in Edmonton; emphasis on geological studies.

1922

Commencement of studies that would reveal no serious technical obstacles to briquetting Alberta's subbituminous coal (six briquetting plants subsequently fluorished in the province).

1921

Establishment by the Government of Alberta, through January 6 Order-in-Council, of the Scientific and Industrial Research Council (later to become the Alberta Research Council) with a mandate to document Alberta's resources for industry through such technical divisions as fuels, road materials and geological survey.

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Rejuvenation of the Research Council of Alberta by Order-in-Council as a six-member body with a mandate to survey Alberta industries with a view to securing secondary war contracts for Alberta.

1933-1941
In light of the depression, suspension of separate government funding for the Research Council, resulting in a decade in which research initiated earlier continued solely under University of Alberta auspices with some assistance from the National Research Council and other agencies.

1932
Cutbacks in government funding, due to economic conditions, resulting in suspension of the soil survey and curtailment of other programs.

1931
Completion of investigations of 36 000 square miles or 14 percent of Alberta's land surface by the Geological Survey Division; commencement of rural electrification studies, investigations of Cochrane building stone, Burmis iron ore and Jasper Park gypsum.

Industrial research began in Alberta in practical fashion—with this 1923 experiment to test the relative merits of various heating plants.

Bitumen from the oil sands, now the basis of a flourishing energy industry, was originally seen as the ideal answer to stabilizing Alberta's earth roads.

1930
Passage of an Act to Establish a Research Council for Alberta, calling for a 10-member council with the President of the University of Alberta assuming the duties of director of research.

1929
Receipt of patent for the hot water extraction process of extracting bitumen from mined oil sands, developed by Dr. Karl Clark.

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